The Journal

OF

The Kansas Medical Society

in which is incorporated

The Wichita Medical Journal.

W. E. McVey, *President;* G. W. Coffey, *First Vice-President;* J. T. Axtell, *Second Vice-President;* Charles S. Huffman, *Recording Secretary;* C. C. Goddard, *Corresponding Secretary;* L. H. Munn, *Treasurer;* S. G. Stewart, *Librarian.*

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Printed by The Gazette Lawrence, Kansas.

Vol. IV. **January 1, 1904.** **No. 1.**

In order to celebrate properly the consolidation of journals, we begin with this issue a new volume. This brings us into line with the journalistic world, which makes the beginning of the year the beginning also of the volume. We shall endeavor to make the coming volume, in so far as we have to do with it, worth binding and shall endeavor to arrange its pages for that purpose.

In this connection we wish to ask again for the support of our colleagues. Unless you want to read constantly the opinions of the editor, you—the readers—will have to give us the benefit of some time and thought, and contribute each one your share to this Journal and make it a symposium of Kansas thought and experience.

The officers of new societies should remember to send their membership lists to the Journal. The editor learns more about the county societies from the papers outside the state than from direct notification. If members in these new societies do not receive the Journal, they should investigate and learn whether their fees have been sent on to the district and state treasurer, and

whether the latter has authorized their enrollment on the subscription books. The county treasurer should send $3.25 for each member of his society not already a member of the state society to the district treasurer and $2.25 for each one already a member of the state society, as annual dues.

THE COLORADO MEDICAL SOCIETY has voted to establish a journal. They evidently realize that thorough and efficient organization without a journal is impossible. *The Colorado Medical Journal* takes exception to the action of the society, saying that either one of the existing Colorado journals would have printed the proceedings at a far smaller cost. Evidently the *Journal* fails to get the point involved. It is not to print its proceedings that a society needs a journal, but rather to represent the society in an agressive and constant effort to raise the plane of professional activity even among the sparsely settled hamlets. To do this effectively a journal must be subsidized; it cannot be self-supporting, at least now. The society journal is the best means for combating sectarianism as well as sectionalism. We hope that the new journal will receive enthuiastic support from the Colorado physicians—even as we have hoped for more support from the Kansas physicians for our own JOURNAL. The Colorado society expects to pay $1200 a year for its journal, of which $300 goes to the editor.

HOSPITALS—We wish to work up an article on hospitals. showing cuts of the hospitals about the state, such as that at Ellsworth, the Clay Centre Hospital, etc. Will each reader owning or knowing about some hospitals please send us word? We would like to know the number of beds, running cost per bed, number of nurses, etc., etc.

BENJAMIN P. SIPPY of Belle Plaine died from cancer of the stomach, November 19. He graduated from the St. Louis College of Physicians and Surgeons in 1884.

ARCHABALD B. TEMPLE, M. D., Western Reserve University, 1883, a member of our society, died in his office at Tulsa, I. T., November 11.

SMITH COUNTY has organized. We have asked the secretary, Dr. Relihan, of Smith Centre, for a report.

DR. C. F. HARRISON of Syracuse, Kansas, advertises land for sale in the *Journal of the A. M. A.*

PROVINCIALISM.

Dr. MacCormack says that fully 50 per cent of the physicians of the country receive no standard literature. This makes it apparent that the need of organization is almost appalling. To what lengths this isolation, provincialism, and feeding on free (advertising) literature can lead the general practitioner is evidenced by the following letter quoted in *The Medical Fortnightly*:—

"I gave your son a turough examination today, I find no tuberculosis at all,

I find that he has had a light attact of Dengue fever within the last teo months, It is a form of malarial, and some times it leaves a trouble behind that is hard to cure, the disease its self is never fatal, hardly ever stopping one from work, but it leaves them very feble, the hemorage that he had was from the broncal tube, While creasote is a very good in such cases, yet it alone will never cure him.

Giving creasote in such cases remindes me of a man that tries to fatten his horse, on grass a lone, then the creasote treatment is out of date.

Mrs. Hynes was taking it in 12 drop doses when she came to me I stoped it at once, my cure is give only the best of medicines. and that in larg quanities.

a change of climent is no good in his case.

the trouble with your doctors is two many cases and two little attentin given to any one, doctors in citys over croud there practis, the man that cures you boy will have something to do besides talk, and you boy will have to track the treatment to the letter. in other words it would be necessary to have some one to give the medicines to him, as they are marked on the bulitin, he could not be trusted to take it at all, a thing that is worth doing is worth doing well,

from what he told to me, I am satisfied that his wife had a rent in the vagina, that set up vaginitis and it was let run until it got in to her blood and the lung being the weakest point, it set up the abseses in the lungs that carried her off,

a number of women die that way ever year, it has got to be so comon that now has taken the name of *Vaginal Consumption*.

Yet the doctors that have never investigated the matter, hoot at it,

yet the same doctor will admit that an inflamed overy, will effect a womans head and cause her to go to the asilum.

he told me that one dr. told him that it came from the vaginal troubles, but that he did not believe him. & got an other Dr.

one other thing that I see in this case, that is that he has ben told and led to believe that he has consumption, and you can not cure a man against his will. He told me that he cought it from his wife, I ask him if any one else cought it from her he said, that his Dr. said

that a man had to be between the age of 15. & 30 to ketch it, said it was infectious, now infect and vacinate is one and the same, So I say and can prove by the records that any disease that has pus or matter is infectious,

O dont suppose that he took any of the matter from her and put it under his skin, if he did he would have died before she did.

Had he have had her vagina treated after she had that child she would have never had that cough.

She died from one form of blood poisen,
and the first thing I did for Mrs. H. when she arrived here, was to cure up that bad vaginitis, that was the cause of her cough. she said that no doctor had ever as much as ask her about it, but all said she had consumption.

I gave B. some medicines, mearly to see if I was correct in my diagnosis,

And I did not say anything to him about treatment, as he said, that he only was to stay a few days."

THE SPECIALIST AND THE GENERAL PRACTITIONER.

The other day I had an unpleasant experience. I was called in to see a patient of mine who was, I supposed, in fair health. I found her suffering from a nervous tremor produced by strychnine tablets dispensed her by a specialist to whom I had referred her to have some new glasses fitted. That it was the strychnine I felt sure because of previous experience with that drug in her case. Naturally I felt somewhat vexed at the occurence but concluded that it would be the part of wisdom to say nothing to my colleauge, but simply avoid sending him any more patients. Now, was I right, or has an oculist the right to prescribe for the general ailments of referred patients?

In spite of Dooley's ridicule, Dr. George M. Gould's position that every young physician should study a specialty is an attractive one. General medicine is too big to allow one man to go deeply into all its branches; and to be superficial is foreign to the conception of the real physician. Hence we would all like to be specialists. But two factors militate against such an arrangement. One is the disposition of a patient to find a doctor whom he likes and to consult him on all matters; and these develop the need of the family physician. The other is the great temptation for the specialist to go beyond his specialty in treating a patient. Therefore such a condition of affairs in which every man is a specialist is impossible. Should we then seek the other extreme, or the mean? In other words, shall

I put in a glass fitting outfit myself, or shall I seek out another specialist?

Just now I am inclined to keep my own patients. What do my colleagues think about it? I would like to add this, however: In my opinion a specialist is a consultant and should conform to the etiquette of the consulting room. B.

DOUGLAS COUNTY MEDICAL SOCIETY.

Nov. 3, 1903. Regular meeting at Dr. Hamman's office. There were present Drs. G. W. Jones, Hamman, Smith, Harvey, Withem, Naismith and Clark and Profs. Bailey, Bartow and McClung. Minutes of the last meeting were read and approved and the secretary read an announcement from the chairman of the Committee on Medical Legislation of the American Medical Association and a letter from the Treasurer of the State Society. Dr. Hamman reported a case of ulcer of the pharyngeal vault, probably of syphilitic origin.

Prof. McClung described a rapid METHOD OF PREPARING PATHOLOGICAL SPECIMENS for microscopic examination.

Drs. Chas. J. Simmons and Edward R. Keith of Lawrence were elected members of the society. Adjourned.

ARTHUR W. CLARK,
Secretary.

Dec. 1, 1903. On invitation of Dr. Chambers, our vice-president, the regular meeting of the month was held at Lecompton in the parlor of the Windsor hotel. Those present were Drs. Lewis, Chambers and Kearns of Lecompton; G. W. Jones, Leslie, Hamman, E. D. F. Phillips, Smith, and Clark of Lawrence; Boyd of Baldwin and Loomis of Clinton.

Meeting called to order at 11:10 a. m.

A letter was read from the treasurer of the State Society showing that the records of two of our members were complete, there having been some misunderstanding about them previously.

On behalf of Dr. Hoxie, absent, Dr. Smith presented a motion that the by-laws referring to time of meeting be amended so as to read: "The regular meetings of this Society shall be held quarterly in the months of January, April, July and October at such times and places as the Society shall determine."

The measure was informally discussed and laid over until the next meeting.

Dr. Leslie proposed that the profession adopt some means of bringing pressure to bear on those of our patients who go from one doctor to another and fail to pay for medical advice. After discussion it was voted that the president appoint a committee of three to formulate a plan and bring it before the next meeting. Dr. Chambers read a paper entitled "THE CONVENTIONAL QUARANTINE OF SCARLET FEVER" which produced considerable discussion until the Society adjourned for dinner.

After dinner there was a short time for further discussion and the final adjournment was at 1:45

ARTHUR W. CLARK,
Secretary.

OUR NEXT MEETING.

Dr. C. C. Goddard reports that the following papers have been promised for the Topeka meeting:

1. Anesthetics, L. S. Chamberlain, Topeka.
2. Practical hints in obstretrics, P. W. Barbe, Oswego.
3. A case of deformity following fracture of the shaft of the femur; osteotomy and result, E. E. Morrison, Great Bend.
4. ——— W. H. Graves, Goddard.
5. ——— J. W. Porter, Pittsburg.
6. A paper out of the ordinary, C. C. Seabrook, Burlingame.
7. Some difficulties experienced in refraction work, E. E. Hamilton, Wichita.
8. ——— R. C. Fear, Gardner.
9. ——— K. O. Brown, Topeka.
10. Evolution: the evolution of man and of the races of men; evolution, physical, mental and moral, its hindrance and promotion, W. L. Schenck.
11. ———F. E. Schenck, Burlingame.
12. ———G. E. Boyle, Winfield.
13. ———W. S. Lindsay, Topeka.
14. Can men and women doctors be a help to each other? Mary J. Lobdell, Beloit.
15. Exema of the cornea: diagnosis, prognosis, treatment, J. E. Minney, Topeka.

16. Microscopical demonstration of the circulation in a living animal, W. E. Bartlett, Belle Plaine.

17. Electricity or the X Ray, Ida C. Barnes, Topeka.

18. The expectant mother, E. T. Shelley, Atchison.

19. The sympathetic nervous system in therapeutics, N. Hayes. Seneca.

20. The pathology and indications for surgical interference in chronic ovaritis, A. E. Hertzler, Halstead.

21. ———C. M. Stemen, Kansas City.

22. The nutrition of the skin, R. E. McVey, Topeka.

23. The culture products in the treatment of tuberculosis, T. A. Stevens, Caney.

24. ———J. T. Axtell, Newton.

25. Active principles in therapeutics, J. F. Preston, Effingham.

Dr. Goddard wishes to receive the other titles as soon as possible.

Members of the society should remember that their dues for the present be paid at once or else they are liable to be "read out in meeting." Three dollars cover the annual dues for state, district and county society, and also the subscription to the JOURNAL.

SMITH COUNTY SOCIETY.

At a meeting of the physicians of Smith County held at the office of D. W. Relihan in Smith Center, Kansas, on the 16th day of November 1903, the Smith County Medical Society (as auxiliary of the State Medical Society) was organized with the following officers:

Dr. M. F. Leary of Gaylord, President.

Dr. B. W. Slagle, Smith Center, Vice President.

Dr. D. W. Relihan, Smith Center, Secretary and Treasurer.

The following were elected delegates to attend the meeting of the Third District Medical Association at Clay Center Feb. 4, 1904: D. W. Relihan and B. W. Slagle.

It was moved and carried that this society meet quarterly at Smith Center commencing with January 1904.

The membership fee of this Society is $2.50 per annum. This includes the fee of the State Medical Society.

D. W. RELIHAN,
Secretary.

RAPID HISTOLOGICAL METHODS.

C. E. M'CLUNG,
Dean of the School of Medicine, University of Kansas.

To the busy physician any methods for the rapid preparation of specimens for diagnostic purposes are always welcome. Those that require the least time and equipment must necessarily be the most useful. Many so called rapid methods are practically useless, but there are a few that are eminently worthy. Among these latter are the smear method for blood and bacteria, and the deposition or centrifugal method for urinary deposits and the like. But really rapid and efficient plans for getting true and representative pictures of pathological growths are few. The freezing method has many advocates, but is uncertain in operation and limited in application. Fresh material may be compressed, sectioned or teased and under certain conditions may thus be examined satisfactorily. Unquestionably, however, thin, well stained sections give the most thorough and representative pictures of what is present in a piece of tissue. The disadvantages of this method are the time and apparatus usually necessary to secure the sections. Both of these difficulties are in a large measure overcome in the following modification of the usual paraffin method:

1. Fixing the tissue. Take thin, (not over $\frac{1}{8}$ inch thick) pieces, of the material and suspend by a thread near the upper surface of a quantity of absolute alcohol. Synthol * is just as effective and much cheaper. The best way to employ this process is to put the fluid in a tall well-stoppered bottle at the bottom of which has been placed a quantity of anhydrous copper sulphate (prepared by heating copper sulphate until the water of crystalization is driven off and a white powder remains.) This will take up the water liberated from the specimen and keep the alcohol pure. Two or three hours will be sufficient to fix and dehydrate the tissue. It is then ready for

2. Clearing. This is accomplished by immersing the fixed and dehydrated specimen in a mixture of cedar wood oil and benzole, 3 to 1, until it becomes transparent. Following this comes

3. Infiltration. Essentially this consists in replacing the clearing fluid by melted paraffin. It is here that the greatest difficulty is encountered in the use of the paraffin method, for there must be

*To be purchased of the Bausch and Lomb Optical Co., Rochester, N Y.

some means of melting the paraffin and keeping it at a uniform temperature near the congealing point. This necessitates water baths and thermostats that are expensive and uncertain in their behavior. All these troubles are overcome by a simple expedient that has been in use in the zoological laboratory of the University of Kansas for several years. The paraffin is placed in a cylindrical vessel, an ordinary drinking glass serves very well, and over it is suspended an incandescent electric light. The heat from this melts the upper portion of the paraffin and if the cleared object be placed in it the contained clearing fluids will be driven off and the paraffin substituted. In the absence of the electric lamp a metal plate heated by an alcohol or gasoline lamp will supply sufficient heat. The advantage of this method, aside from its simplicity, is that the object always sinks to the bottom of the melted infiltrating agent and in this way can never become overheated. If the object has been cleared in the cedar wood oil-benzole mixture it should be left in the melted paraffin until it has again become opaque, usually about half an hour.

4. Embedding. By this process the object is brought into a convenient sized piece of paraffin for sectioning. For small pieces of tissue the watch glass method is good. The concave surface of the glass receives a thin coat of glycerine and on it, by means of a pipette, a sufficiently large drop of melted paraffin is deposited, Into this the infiltrated object is removed directly from the paraffin bath, and the mass cooled rapidly. This is the best accomplished, after the surface has hardened into a film, by submerging the watch glass and its contents in cold water. In a short time the paraffin block will harden without crystalizing, and presently will leave its glass support and rise to the surface of the water. After it has been trimmed into a rectangular block it is ready for

5. Cutting. In this part of the process is involved the only considerable expense. It is necessary to have some means for cutting thin sections and microtomes for this purpose are more or less. expensive. However a simple hand instrument can be made to serve the purpose, and in its absence serviceable sections may be made by free hand cutting. A good strong knife is essential. After cutting, the sections may be treated as free sections or better may undergo

6. Fixing to the slide. Several methods are in vogue, but the most convenient is by means of Mayer's albumen (equal parts of egg albumen and glycerine). A thin film of this mixture is rubbed on the glass slip with the finger and upon this is placed the paraffin ribbon.

This is pressed down as smooth as possible and the glass is then heated over a flame until the paraffin melts. After passing the slide through xylol, or turpentine, to remove the paraffin, and into alcohol to dissolve the xylol, the sections are ready for the next step,

7. Staining. Unless some specific stain is necessary, coloration by means of haematoxylin, preferably in the form of haemalum, will serve the purpose well. If haste is unavoidable the aniline dyes offer rapid agents. Among these safranin and Lyons blue hold high positions. If coloration by safranin is followed by the application of the blue stain, beautiful preparations result. The final step is

8. Mounting. For this purpose either balsam, cedar wood oil, or glycerine, after appropriate treatment, may be used.

Within a period of four or five hours it is thus possible to get good permanent mounts of ordinary tissues. These are incomparably better than any that can be made by the ordinary hasty methods so often recommended.

DR MCCORMACK, the organizer of the American Medical Association, will probably be with us at our annual meeting to tell us how to improve our organization.

THE CALIFORNIA STATE SOCIETY has published a register of the physicians of the State. The book is given free to members of component societies, but costs $2.50 to outsiders.

THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION has changed its constitution and now seeks to become a district branch of the American Medical Association. The members of the Association must be members of the State societies of Minnesota, Iowa, Missouri, Arkansas, Louisiana, Wisconsin, Illinois, Kentucky, Tennessee, Mississippi, Michigan, Indiana, Ohio, Alabama, Georgia, and North Carolina. Organization is the slogan of the day.

PROF. S. J. HUNTER of the University of Kansas has confirmed by experiments the theories of Loeb on the parthogenesis of sea urchins in concentrated sea water. He wrote up his observations for the *Biological Bulletin* for August 1903. He reads a paper on his latest researches at the St. Louis meeting of the society for the advancement of science during the holidays. At that meeting, Prof. Hyde, the physiologist, will also read a paper on the location of the respiratory center, especially in invertebrates.

DR. HAGGART of Ottawa writes us that the Robinson Drug Co. of Topeka, is using his name without permission or right, as an indorser of their products. He wishes to collect evidence of such use.

THERE WILL be a meeting of the Council of the State Society on Thursday, January 14, 1904, at the Hotel Baltimore, Kansas City. The principal question to discuss is a revision of our laws and whether we desire, and can adopt the constitution and by-laws framed by the American Medical Association.

There are many things that the District Branch Societies are interested in, and we ought to have a thorough discussion of plans.

Dr. McCormack of Bowling Green, Ky., Chairman of Committee on Organization of the A. M. A., has promised to be present.

The following named gentlemen form the Council:

W. E. McVey, President, K. M. S., Topeka. Kansas.
Chas. S. Huffman, Recording Secretary, Columbus.
L. H. Munn, Treasurer, Topeka.

R. A. Roberts,	President	1st.	District,	Kansas City,	Kansas.
M. F. Jarrett,	"	2nd.	"	Fort Scott,	"
W. F. Sawhill,	"	3rd.	"	Concordia,	"
D. W. Basham,	"	4th.	"	Wichita,	"
S. J. Crumbine,	"	6th,	"	Dodge City,	"

WHAT ATTITUDE should the organized profession assume toward such a man as the one who issues the following card?

F. W. RATHBURN,

SPECIALIST.

1304 TENNESSEE STREET, - - LAWRENCE, KANSAS.

I Manufacture Special Remedies for All Known Diseases.

CHRONIC DISEASES A SPECIALTY,

Such as Cancer, Old Sores, Chronic Flux, Chronic Diarrhœa and nearly every disease the human flesh is heir to. Female and private diseases strictly confidential, and remember without poison. I have something that is worth more than gold to any lady, married or single.

Call and investigate or write. I am at home nearly always on Saturdays. I can save you untold pain and misery and hundreds of dollars.

Also put up the finest Ringbone and Spavin cure in the world, and remedies for all ailments in horses or other stock.

FEE BILLS.

President McVey has called our attention to the following statute:

Sec. 2430, Trusts. (*Sec. 430 of Crimes and Punishments.*)—"That all arrangements, contracts, agreements, trusts or combinations between persons or corporations made with a view or which tend to prevent full and free competition in the importation, transportation or sale of articles imported into this state, or in the product, manufacture or sale of articles of domestic growth or product of domestic raw material. or for the loan or use of money, or to fix attorney's or *doctor's fees*, and all arrangements, contracts, agreements, trusts or combinations between persons or corporations, designed or which to advance, reduce or control the price or the cost to the producer or to the consumer of any such products or articles, or to control the cost or rate of insurance, or which tend to advance or control the rate of interest for the loan or use of money to the borrower or any other services, are hereby declared to be against public policy, unlawful and void."—(L. 1889, Ch. 257, Sec. 1; March 9.)

This only goes to strengthen the position assumed in our November editorial: We as physicians cannot adopt present-day unionism, but should so meet together and compare notes that our fees as well as our dealings with the public may be consistent and proportionate to the demands made upon us. Friendly intercourse and mutual confidence solve the financial as well as other problems.

WE WOULD like copies of the JOURNAL for July, 1901, January, February, August, October, December, 1902; and January to May, 1903. Holders of such copies willing to contribute them to the University Library or the State Historical Society should send them to this office.

THE "CORNING (N. Y.) SYSTEM" of dealing with deadbeats is worthy of study. Each physician hands to the committee a list of those people who will not pay their debts. This list is furnished the other physicians and they refuse to treat such deadbeats until satisfactory arrangements have been made with the preceding physician, either by note or cash. This like all other schemes demands that the physicians meet together often enough to learn that the "other fellow" is not a rascal.

ARGYROL.*

DR. J. W. MAY, KANSAS CITY, KANSAS.

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In presenting this paper I have no desire to become an advocate of proprietary therapeutics. For Argyrol is a proprietary preparation. But when a drug has proven its efficiency, it should then, in my opinion, be used regardless of by whom or where it is made. Argyrol is a proteid salt of silver and contains, from the manufacturer's statement, 30 per cent of silver, which is ⅔ more than the amount said to be contained in protargol. The advantages claimed for it, are:—

First. Its deeper and more penetrating action.

Second. Its freedom from irritating properties. (Since 25 per cent solution can be instilled into the conjunctiva without pain whatever. The manufacturers claim that a crystal can be put on the conjunctiva without any irritation, but I have not tried the latter procedure.)

Third. It does not permanently stain the conjunctiva and hence does not produce the so-called argyrosis.

Fourth. Its extreme solubility. Put a few crystals in the hand and in a very short time you will have a solution. Perhaps many have not had the opportunity of seeing the drug, as it is comparatively a new preparation, being first produced in the early part of 1902. It is produced from the laboratories of Drs. A. C. Barnes and H. Hille of Philadelphia.

I have a clinical report of a few cases in which I have used Argyrol. The President of this Society, Dr. Roberts, saw most of the cases and can bear me out in most of the statements.

Case I. The infant daughter of Mrs. W., aged one week. First examined case April 20. Eyes had been discharging thick yellowish pus five days. Lids swollen and with great difficulty could see the cornea which had not been attacked. The conjunctiva was swollen and deeply congested. Photophobia intense. Diagnosis: opthalmia neonatorum. I put the patient on the following treatment: Sat. sol. boric acid, thoroughly washing out conjunctiva every hour, night and day; argyrol 60 gr. to oz. every 6 hours. This active treatment was kept up one week and the discharge ceased, though conjunctiva remained swollen and congested. I then reduced the treatment to irrigation with sat. sol. boric acid every 4 hours and argyrol

*Read before the First District Society, October 1, 1903.

twice daily; and the case ended in recovery without complications. Total treatment, two weeks.

Case II. Infant son of Mrs. G., aged 6 days. First examined case March 24, 1903. Found practically same symptoms as in previous case; discharge same; yellowish pus. Diagnosis: opthalmia neonatorum. Treatment same as in previous case except the case was discharged as cured in 10 days, four days less than previous one.

Case III. Fifteen year old son of Mr. R. First examined case July 17, 1903. In this case the disease was confined to the right eye. Lids swollen shut. Ocular and palpebral conjunctiva swollen and deeply congested. Discharge, yellowish pus of great quantity, started 24 hours before. Cornea clear; photophobia intense. Diagnosis: gonorrhoeal opthalmia. I put him on argyrol, 25 per cent sol., every 3 hours; atropine 4 gr. to ox. every four hours; irrigation with sat. sol. boric acid every hour. I instructed patient to call twice daily for treatment, but his father left the city and boy thought it unnecessary to continue treatment. Patient returned for treatment July 24 after an absence of one week. Conjunctiva, both ocular and palpebral now swollen until it protruded through lids. Extreme photophobia and pain. Discharge purulent and profuse. Cornea has large central ulcer rapidly spreading. Curetted ulcer with Graefe knife and cauterized with pure carbolic acid. Then covered ulcer with iodoform powder. Treated ulcer twice daily with powd. iodoform. Ulcer ceased spreading at once and commenced cicatrization. Irrigated with sol. bichloride 1 to 5000 every hour, combined with hot applications; atropine 4 gr. to oz. every 4 hours; argyrol 25 per cent sol. every 4 hours. This treatment was kept up one week, when all discharge had stopped. Discontinued bichloride and iodoform, but kept up atropine three times daily and irrigated every three hours with sat. sol. boric acid; Argyrol 12 per cent, 3 times daily. I continued this treatment two weeks, when I discharged patient as cured. Total treatment three weeks. The Cornea has large central scar which diminished vision to 20-100.

In the cases just mentioned the microscope was not used to confirm the diagnosis, but to my mind that was unnecessary considering the virulence and rapidity of onset and other symptoms.

In the treatment trachomatous conjunctivitis I have had marked success with argyrol. For instance:—

Case IV Mr. C. of Oklahoma, aged 52, had inflammatory trouble with eyes for 10 years. Lids closed from discharge on arising. Palpebral conjunctiva swollen and of velvety appearance. Ocular conjunctiva congested. Cornea not attacked. This form of trachomatous conjunctivitis is, to me, the hardest to treat and get good results from than any of the chronic inflammations of the conjunctiva. Treated this man daily for about 2 months with argyrol 25 per cent solution rubbed hard into conjunctiva of lids. At the end of treatment the lids were smooth and there was no discharge. He left and I heard from him 2 months after. He said his eyes were giving him no further trouble.

In this case I don't suppose you would say the patient was cured, but the eyes ceased to trouble him further and when that is accomplished then I am satisfied.

Case V. Mr. W. of Williamsburg, Kansas, aged 35, had inflammatory trouble with both eyes for 5 or 6 years. Conjunctiva swollen and discharging; left eye much worse than right. Cornea clear. Appearance of conjunctiva, much like preceeding case though not so marked. Diagnosis, trachomatous conjunctivitis. Treated daily with argyrol 15 per cent rubbed hard into conjunctiva. I used also bichloride 1 to 5000, 5 to 6 times daily. He was discharged as cured 4 weeks after.

I now have three children in Bethany Hospital with trachomatous conjunctivitis, all from Oklahoma.

Case VI. Bertha, aged 13, had inflammatory trouble with eyes 3 or 4 years. Has scars on both corneae showing previous ulceration. There was no disturbance of cornea at present. Lids were granular in appearance. Treated with argyrol 15 per cent solution rubbed into conjunctiva of lids daily, also bichloride 1 to 5000, irrigation 4 or 5 times daily. She is practically well and ready to go home.

Case VII. Julia, aged 15, had inflammatory trouble with eyes 4 years. On everting lids found great bunches of trachoma granules on conjunctiva. Left cornea clear. Right dense panus extending over ¾ of cornea. Started treatment with argyrol 15 per cent solution, rubbed into conjunctiva of lids. Irrigation with boric acid saturated solution 5 times daily. Atropine 4 gr. to oz. in right eye. Continued this treatment a few days then changed from argyrol to copper sulphate stick since I did not get rapid enough results. I changed back to argyrol after one week of copper. Lids are now smooth and no discharge; and the panus has almost entirely disappeared.

Case VIII. Mary, aged 12. I don't know how long eyes troubled her. Lids roughened and contracted from old trachoma scars. Lids closed from discharge on arising. Used in this case argyrol 15 per cent solution daily. Irrigation with saturated solution boric acid and as blepharitis was present, I used yellow oxide of mercury in lanolin one grain to the drachm. The case is recovering slowly.

The last three cases have been under observation about 6 or 7 weeks.

In acute catarrhal conjunctivitis, this drug seems to be *the* remedy. It stops the discharge almost immediately. I use it usually in 5 per cent to 15 per cent solution. Have a case of chronic catarrhal conjunctivitis that argyrol has had no effect on whatever. Haven't found out as yet the reason.

In summing up the evidence, I have found that argyrol benefits most cases of inflammation of conjunctiva, either acute or chronic. Of course there are cases that will not yield to this drug and oftentimes you will have to combine other treatments with it. In using

argyrol I nearly always massage it into conjunctiva, especially in chronic inflammations. One thing against its use is the price. It costs $1.50 an ounce. But the expense which seems great is, in reality small, as you use only a very small quantity. I have found that it keeps indefinitely.

In the treatment of gonorrhoeal opthalmia, it is *the* treatment *par excellence*. It seems to me that it should take the place of silver nitrate with obstetricians in Crede's method of preventing opthalmia neonatorum, for the reason that it is harmless and certainly of great enough germicidal power.

REPUBLIC COUNTY.

The meeting of the Republic County Medical Society on December 3 was quite successful. The new officers elected were: J. S. Billingsby, president; D. E. Fonstall, vice-president; C. M. Arbuthnot, secretary-treasurer. The attendance, while not large was enthuiastic, and arrangements were made for a meeting in May. The change to a state auxiliary was discussed but not adopted.

THE NEWER TEXTS IN ANATOMY.

GEORGE HOWARD HOXIE, A. M., M. D.,
Professor of Anatomy, School of Medicine, University of Kansas.

The doctor's library should never be without a good text book in anatomy for reference in case of emergency. The Gray has been revised and "edited" until the language is anything but intelligible and comprehensive. Hence the Gray for any one in a hurry, or for a beginner is of less value than some of the newer books. Among

these, those of Gerrish, Morris and Cunningham deserve the greatest mention. These books are all composite—that is, written by various men and revised by an editor whose name is given to the book. Gerrish is an American work—Dr. Gerrish teaches in a medical college in Maine; while the other two are English. Gerrish's characteristics are brevity, lack of detail, and excellent diagramatic illustrations. Its lack of detail makes it a poor book for reference and even for exact study. Morris is now in its third edition and is much more detailed than Gerrish, but its statements are not much clearer than Gray's; while it is old enough to have needed correction on points worked out these last few years on the finer structure of the nervous system and with regard to the viscera from the use of formalin preservatives. It certainly is a very useful reference book. Its terminology is vexatiously British and insular, the international nomenclature being rather slighted. This militates against its use with students who in the other kindred sciences follow the international usages. Cunningham's book is the newest of the three and therefore has profited by the mistakes of its predecessors. Its terminology represents a compromise between the BNA and the British. Its statements are exact, comprehensive and in most respects sufficiently detailed. As a reference book it is excelled by Morris but as a text book it is superior to the other two books named. Its language in some sections is ungrammatical, *e. g.* one structure "corresponds *with*" another, but in general its style is clear and easy. It follows Gegenbaur's method and studies the development of each system of tissues, thus making the study easier and more logical.

A development of these later years has been the issuance of atlases for hand use in the dissecting room. The two best are both of German origin. Toldt's in six volumes, still untranslated, and Spalteholz, in three volumes, translated by Barker of Chicago. For ordinary work the Spalteholz is the more satisfactory and we hope that its final section on the nervous system will soon appear. In these atlases the illustrations are larger and more elaborate than in the ordinary text books. In connection with the atlases we should mention Deaver's Surgical Anatomy, the illustrations of which are so good that it should rank with the atlases.

Dissecting manuals have also been improved these last years. Holden's Dissector still holds a prominent place, but with the displacement of Gray's text book, this manual becomes less useful. A newer book based on Gray and Gerrish is the dissector of the Eckley's in Chicago. Herein the illustrations are taken bodily from Gerrish and the book is therefore a shorter summary of Gerrish's

text book. For those students who use Gerrish it ought to prove helpful. Another manual of dissection, and a very helpful book, is Cunningham's, now in its third edition. This is in two volumes of about 600 pages each; but the page is so small (5x7½) that the discussion is much shorter than in Cunningham's text book. This manual is so complete in itself that the teacher is tempted to make it the text book and use a regular text book only as a reference. However for physicians' use as a reference book, it is not to be recommended.

Hence for the doctor's library we advise Cunningham's or Morris' text book and Spalteholz' atlas.

Gray is published by Lea Bros. & Co., Phila.; Gerrish by Saunders, Phila., ($3.00); Morris by Blakiston, Phila., ($6.00); Cunningham's Textbook by Wood, N. Y., ($6.00); Cunningham's Manual by Lippincott, Phila., ($5.00); Spalteholz' Atlas by Stechert, N. Y., (3 vols. for $10.00.)

SEPTIC INFECTION.*

H. J. STACEY, M. D., LEAVENWORTH.

I shall not ask you to listen to a discussion of the bacteriology of septic infection; nor to hypotheses of cepters and complements. Rather, I shall invite your consideration to a few points of practical interest to the clinician, and shall present particularly the treatment of septic infection—or blood poisoning.

Important systemic infections are septicemic and pyemia. Septicemia is a pathologic condition in which certain bacteria are taken into the blood-current and multiply there; where the germs and their poisons (toxins and toxalbumins) produce a familiar clinical picture—irregular remittent fever, chills, sweating and prostration.

Pyemia is a condition caused by the absorption of pathogenic bacteria from a focus of suppuration, and is characterized by the formation of secondary foci of suppuration (metastatic or pyemic abscess); the symptoms being those of septicemia, with the addition of such symptoms as might be due to the secondary abscess.

*Read before the First District Society, Oct. 1, 1903.

The intoxications—these are caused by the absorption into the system of the products of bacterial activity—such bacteria not being necessarily bacteria of suppuration. Probably the bacterial intoxications are usually due to the absorption of poisons from both suppurative and putrifactive bacteria—a sort of mixed infection Alkaloids have been isolated from these products which resemble atropine, morphine and curare in their physiologic action. The determining factor between sapremia and septicemia seems to be the relative toxic power of the bacteria. The toxins being negatively chemotactic, if they are relatively weak the bacteria themselves do not readily penetrate into the blood-stream; only the poisons are absorbed, and sapremia, a septic intoxication, results instead of septicemia.

The local manifestications of septic infection, suppurating wounds, abscess, and the like, will be considered later; it being important, however, to remember that inflammation and suppuration may be due to mechanical chemical agents; but pus so formed is by nature sterile, and becomes dangerous only when infected (from without or within).

We may notice among the cocci staphylococcus pyogenes albus and aureus, streptococcus pyogenes, and briefly the gonococcus; among bacilli, the bacillus coli communis, and bacillus tuberculosis.

The staphylococcus pyogenes albus is found in pure cultures in abscesses, boils, empyema, osteo-myelitis, etc.; it tends toward free suppuration, by manufacturing peptones which liquify the fibrinogen present. The staphylococcus pyogenes aureus, found in carbuncles, is a less active pus producer.

The streptococcus pyogenes is microscopically identical with the streptococcus of erysipelas; and at the very beginning of an invasion, the clinical manifestations of a streptococcus infection may closely resemble erysipelas. It does not cause suppuration at first, until, indeed, the tissue involved is dead, not forming peptones to any great extent until deprived of oxygen by the severity of the inflammation. Fortunately it gains a foothold in the human body with much greater difficulty than do the staphylococcus mentioned above. All three germs are found practically everywhere; in dust, soil; on the human skin, in the fur of amimals, and all similar places.

The gonococcus, the accepted cause of gonorrhoea, attacks especially the epithelium, as of the urethra, or eye; but in case the underlying tissues are weak, it may get into the system. Suppurative inflammation of the joints and other parts, complicating gonorrhoea, have given pure cultures of the gonococcus.

The bacillus coli communis is an especially active cause of suppuration in the abdominal cavity. Pure cultures have been made from fulminating appendicitis, abscess of the liver, cystitis; and in secondary broncho-pneumonia, and lymphangitis of the arm. It is found outside the body in dust, water and putrifying fluids; its usual habitat in the human body is the alimentary canal. It is a dangerous factor in peritonitis from perforation, though many of the symptoms of this disease are undoubtedly due to other bacteria and poisons contained in the escaped bowel contents.

A considerable number of pathogenic bacteria may circulate in the blood or find lodgment in the fixed tissues without injury to the host, unless the vital resistance of some part be weakened. In an injured area, the blood-currents are slower, effusion takes place, and a good culture medium is formed: a septic infection may then develop when no septic material has been directly introduced through a wound, (*e. g.*, the so-called idiopathic sepsis; idiopathic peritonitis, endocarditis, etc.). Of special interest is this in regard to wounds made by the surgeon: the area of reaction about a lacerated wound, or the exudate in a dead space left by the surgeon in closing a wound, make an ideal culture ground for any bacteria circulating in the system. Bacteria circulating in the body are deposited chiefly in three organs: liver, spleen and bone marrow; and if in limited numbers they will be destroyed. (Typhoid bacillus bone-abscesses complicating typhoid fever illustrate this point). A wound or bruise or any exhausting illness like nephritis, or vice, as alcoholism, may change the balance of power and septic infection result.

The pus-producing bacteria become truly pathogenic only when they are present in overwhelming strength. They are found—one might say, normally—about the human body; the staphylococcus, and more rarely the streptococcus, under the finger nails, in the creases of the skin, and anywhere where there is oil or dirt; the staphyloccocus loves to dwell in hair follicles, even penetrating between the hair and its sheath; a common cause of the surgeon's stitch abscess. The bacillus coli communis is a regular inhabitant of the intestines.

The pus-producing bacteria gain entrance into the system through a solution in continuity of some tissue. The infection may remain local, producing a single circumscribed abscess; it may spread through the agency of the lymphatic system, causing lymphangitis, adenitis, multiple abscess, etc.; it may penetrate capillaries, and may break through a vein. The symptoms of the patient

will increase in severity in about the above order. In the last case, the process of inflammation attacks a vein, soon involves the inner coat; a thrombus is formed. The germs and their products may be swept into the general circulation, being destroyed or giving rise to septicemia; or considerable portions of a septic thrombus may be detached, forming septic emboli. These in turn by infarction, and by being stopped for any reason, give rise to secondary or metastatic abscesses. If the embolus is large, it will usually be caught in the lungs; if small it may pass through the lungs, since the capillaries there are larger than elsewhere, and thus may reach any part of the body.

Of cases of suppuration in man, the staphylococcus is found in about 66 per cent; the streptoccocus in about 20 per cent; a mixture of the two in 9 or 10 per cent. A great number of combinations are found, the staphyloccocus being frequently present; as, staphylococcus, and pneumococcus; staphylococcus and bacillus coli communis; staphylococcus and bacillus tuberculosis. The streptococcus is found more rarely in similar combinations; and more often with scarlet fever and diphtheria. The gas bacillus of Welch may complicate a septic infection, and give rise to a symptom-complex simulating bubonic plague; it is found also in multiple abscess of the lungs and phlegmonous swellings. The typhoid bacillus is found, both mixed and in pure cultures, in abscesses of the bones, liver and chest; it is found pure in the blood, and in rose-colored eruption spots. The pneumoccocus is found mixed and alone in empyema and abscess of the lungs; the gonococcus mixed and pure in pus tubes, gonorrhoeal arthritis, and suppurative adenitis. The bacillus tuberculosis is found in every conceivable combination.

The diagnosis of septic infection *usually* presents so few difficulties that its discussion is not profitable; and certainly I do not presume to be able to throw much light on the really difficult cases. The history of the case; general appearance of the patient; the slow, steady development of the so-called chronic (really, relatively weak) infections; the injury, pain, redness, swelling, irregular fever, chill, malaise, prostration, of the acute infection, will usually make the way clear. Aspiration with the hypodermic needle, the making of cultures may rarely be necessary. The dusky red streptococcus infection must be differentiated from erysipelas. Infections in the great cavities of the body and in bones, are often most puzzling.

Unfortunately, there are occasional cases so desperate as to defy treatment; the system being overwhelmed at the very outset, the

most alarming constitutional disturbances developing in fourteen to twenty-four hours after the primary infection; the late chief surgeon of the Rock Island system is a case in point.

The internal treatment of a case of septicemia or pyemia of average severity may be summed up as "supporting." First of all, they require the greatest possible amount of nourishment by mouth and rectum; with due attention paid to all emunctory organs. The most useful stimulants are perhaps digitalis, carbonate of ammonia and strychnine; alcohol and quinine may easily be pushed too far. Straight opium, either the tincture, or better the powdered drug, seems to control nervousness, sleeplessness and rapid heart best. Ergot is of the greatest value in controling the restlessness of prostration. Serum treatment, by streptococcus antitoxin or other serum, has not proven brilliantly successful, nor have intra-veneus injections of formaldehyde, or other antiseptics. Too much stress cannot be laid on the value of administering water, by mouth, rectum, by hypodermoclysis and venous injection. The abstraction of a considerable quantity of the septic blood just before the injection of the saline solution is often of marked advantage.

The principal treatment of sapremia consists in removing the cause—usually not difficult to find, the lesion generally being superficial—by cleansing, irrigation and aseptic dressing.

The local treatment of septicemia and pyemia will be taken up more in detail. Both are usually dependent on a closed suppurating tract. The tract should be opened, stitches removed, if there are any, all clots, pus and decomposing material washed out.

It may be stated as an axiom that there is no antiseptic solution capable of entirely destroying bacteria that will not destroy or injure wounded human flesh. Even bichloride of mecury 1:1000, or carbolic acid 5 per cent, has little effect on the bacteria under consideration if they happen to be protected by fats, albumin or dirt, while such solutions injure raw flesh, and if long applied exhibit their toxic effects. Unless an infected wound is seen within a few minutes of its occurance, many of the bacteria are out of reach of the antiseptic. We therefore will not depend on one or two washings with a poisonous antiseptic.

For the ordinary suppurating tract in the soft parts then we will cleanse as if for formal operation, the only objection to free operation being the risk of additional infection; we will open very freely, explore all pockets and sinuses and clean out with the finger covered with rubber gloves—it is superior to any instrument—meanwhile irrigating gently with a mild solution—plain sterile water, normal

salt, or Thiersch's solution. If there are no deep sinuses, peroxide of hydrogen 50 per cent is useful, but it cannot be used excepting in open cavities. If pain is very marked, a weak carbolic acid solution, 1-100, may be used. As exceptions: a particularly virulent suppurating tract, after being cleansed and dried, may well be filled with pure carbolic acid (any dilution of the acid makes it more dangerous), which is allowed to remain for a few seconds, when it is removed and replaced with pure alcohol, which in turn is washed out; abscesses due to venereal infection—gonorrhoea or chancroid—seem to react more kindly to silver, the nitrate being apparently as effective as any of the newer salts.

The dressing should at first be wet, whether or not mechanical drainage is used; and serious cases do better still with continuous irrigation. The solution used in either case will be mild; sterile water, normal salt, Thiersch's, carbolic acid 1:200, or bichloride 1:4000 according to the degree of pain, inflammation, adherent sloughs and the like; the temperature of the dressing to be the reverse of the affected part. Light curetting may rarely be advisable; but it is to be remembered that the so-called "pyogenic membrane" lining abscess cavities is not really a pyogenic membrane at all, but a wall protecting the neighboring tissues from invasion. For example, in circumscribed peri-appendicular abscess, it is often good surgery merely to incise and drain, rather than run the risk of general peritonitis by the breaking up of adhesions necessary in order to remove all infected parts. Of course, this has no relation to cases where the abscess, sac and all can be removed in toto, as in unruptured pyosalpinx.

The streptococcus infection of ordinary severity, to be well handled, is freely incised before much pus has formed. You will recall that the flesh is liquified only after it is dead, and therefore after the infection has moved on. Early free incisions, splitting all suspicious parts wide open, followed by wet dressings or continuous irrigation, seems about the only way to control this terrible disease. It limits the disease as much as amputation, since it controls it as far as applied, and if the patient survives, the affected member is saved.

Bone and joint abscesses must be incised, carefully explored, cleaned out and curetted. The practice of injecting an undrained abscess, whether tubercular or not, seems to have been due to the fear of mixed infection; that fear can now be disregarded by the careful surgeon. In tubercular joint abscesses thorough draining and curetting with the application of carbolic acid or silver, carried out with rigid asepsis, give better results than iodoform injection

ever did; of course to secure a good result efficient and continuous extension must be applied.

Empyemia should be freely drained as soon as diagnosed.

In pelvic suppuration, incise and drain, per vaginam, any abcesses that can be easily reached. In septic metritis, usually a streptococcus mixed infection, do not curette; curetting cannot remove all the bacteria, and simply breaks into healthy tissue and opens up uninfected sinuses. Clean out any large masses of infected matter; insert a doubled, button-holed rubber tube or catheter, and irrigate with 4-6 ounces of 50 per cent alcohol every four hours.

Do not wait on boil, carbuncle, abcess and especially streptococcus infection. Waiting allows a mere local infection or a septicemia to develop into a pyemia, a misfortune too deplorable for words.

Handle as surgical cases, not medical. A handy and satisfactory method of emergency sterilization both for the affected part and for the surgeon's hands is: thorough scrubbing with tincture of green soap and sterile water; rinse well with water, then with ether, then scrub with 1-1000 bichloride and rinse again in water. Boil instruments and appliances that will stand heat, and use formaldehyde on the rest. All dressings must be sterilized by heat, dry or moist.

All this treatment may practically be expressed by: "Drainage, Asepsis."

DIAGNOSIS AND TREATMENT OF FISTULA IN ANO.*

DR. J. M. POINDEXTER, KANSAS CITY, MO.

A rectal fistula is a sinus leading from the rectum into the perirectal tissues and there terminating in an old abscess cavity, or passing through these tissues and terminating at an external opening in the skin more or less removed from the anus.

These two varieties constitute the only true rectal fistulae. The one terminating in the tissues is called a blind internal or incomplete fistula, and the other, terminating at an external opening, a complete fistula.

A fistula which begins at an opening in the skin and terminates in the perirectal tissues and has no communication with the rectum,

*Read before the Lyon County Medical Society, Nov. 3, 1903.

is not a rectal fistula, but owing to its close relation with the rectum it is commonly called a rectal fistula. It is known as the blind external rectal fistula.

These are the three varieties of rectal fistulae or fistula in ano to the consideration of which I invite your attention.

The diagnosis of fistula in ano, especially the blind internal variety, is to be made chiefly from the pain, soreness, uneasiness and the discharge of pus per anum, and in the complete variety from the external openings. Prior to the formation of the fistula proper, there will be the history of an acute abscess. When the abscess ruptures either internally or externally, the symptoms will subside with the appearance of pus in the stools or at the external opening. Fistulae are always derived from abscesses and the location of the abscess will often determine the site of the opening. A favorite location for these abscesses is in the ischio-rectal fossae, though they often form in the retro-rectal and lateral superior pelvic spaces. When these abscesses rupture only into the rectum and show no tendency to heal, they cause the blind internal variety, and when they rupture both into the rectum and on the skin the complete variety is formed. These openings may and do at times heal over, thus preventing the escape of pus, which, re-accumulating in the cavity, causes the reproduction of the symptoms which will continue until the outlet is reopened or a new one formed, when they will again subside. This re-ocurrence and subsidence of symptoms lead us to suspect fistula even though there be no external openings.

When it is one of the external varieties there is no great difficulty in making a diagnosis, in fact the patient usually makes a correct one himself before he consults a surgeon for treatment. But it is different with the blind internal; here it requires a careful examination. The internal opening is usually low down, between the two sphincters, but it may be much higher, depending upon the location of the abscess. It is usually small, but by close inspection it can gener-ally be found at the summit of a papilla, at the bottom of a depression or within a crypt of Morgagni.

If ulceration is present, the fistula will be large and readily detected, especially when it is of a tubercular nature, it will then have an angry appearance, with red, ragged, undermined edges.

It has been said that an experienced rectal surgeon should have the tactus eruditus so well developed that he will always be able to find this opening by the sense of touch alone. But all operators still depend mostly upon the speculum to reveal its presence and location.

When an internal fistula is suspected, a speculum is gently introduced and opened just enough to afford room for inspection, but not enough to put the parts on the stretch as by so doing the opening would become obliterated.

By manipulation and by pressure on the different points of the circumference of the bowel, pus may be seen after a moment or two to well up from the opening, thus revealing the fistula. A probe bent at the proper angle may then be inserted into the opening and its course and depth determined. When an external opening exists at the same time and both discharging pus, no doubt can longer remain of the presence of a fistula and that a complete one.

In the external varieties the opening is more readily detected. It is usually very small, especially when of long standing, admitting only the finest probe; or it may be large, admitting the tip of the finger when it is tuberculous.

Its location may be anywhere around the anus or out on the buttock. When it is near the margin of the anus, within the radial folds it will require close scrutiny with stretching of the parts to detect it. While it is difficult at times to find this opening, at other times a casual observation will reveal its presence, and possibly a number of external openings, all of which lead down to abscess cavities or into one common cavity. The course of a sinus leading from an external opening, when superficial, may often be ascertained by practicing palpation between the opening and the anus. It will be detected by its hard, indurated, cord-like feel. But when the sinus dips down into the deeper structures, palpation will reveal nothing; and the probe will be our only means for ascertaining its direction. If there is only one moderately straight sinus, there will be no difficulty in finding its bottom, or in causing the probe to appear at the internal opening. But these sinuses are more often very tortuous, leading from one cavity into another, and furthermore each individual sinus may be very inconstant in diameter throughout its course. In such cases the probe will be arrested in the first enlargement or cavity it meets and it will be difficult to cause it to enter the opening on the other side. In fact it may be impossible to do so until the tissues are divided upon a grooved director to that point, when by manipulation and search, the probe may enter the proximal end and by continuing the process it can be made to appear at the internal opening if one exists.

The *treatment* of fistula in ano is the same as that instituted for chronic abscess. It consists in furnishing free drainage for all discharges and in exciting healthy granulations by means of irritating

injections, curettage, or by free incision of the sinuses. Before performing any operation, a microscopical examination should be made of the discharges and scrapings of the diseased tissues to ascertain whether it be tubercular or not; for it is unsafe to operate in tubercular cases except by total excision of entire diseased area and by immediate suture. The danger is that a general tuberculosis or tuberculosis of other internal organs may be incited from the absorption of tubercle bacilli through the freshened surfaces. In such an operation, strict attention must be paid to aseptic surgery in every particular.

Many fistulae can be cured by simply furnishing free drainage, and others by thorough drainage first and irritating injections afterwards to cause healthy granulations. The *modus operandi* is as follows: After the cavity (or cavities) has been thoroughly drained and washed out with sterilized water, it is fully distended by a saturated solution of silver nitrate, which is allowed to remain two or three minutes. Then the opening is enlarged under local cocaine anesthesia, and the injection allowed to escape. The cavity is then washed out again with sterilized water. Some operators prefer carbolic acid, some iodine, for the injection. Tuttle of New York prefers the silver solution and I have had better results from it than from any other. This method is especially beneficial in the blind external variety, but is often employed, with success, in the complete type.

This treatment should be tried in those cases of complete fistulae where the internal opening is high up in the bowel and there would be great danger of excessive hemorrhage from the cutting operation. In all such cases vaseline should be freely applied around the internal opening and mucous membrance generally to protect it from the action of the caustic that might be forced into the bowel. The cure is effected in from two to three weeks, and this much time should elapse before repeating the operation; at the end of this time, however, if healing has not taken place the operation can be repeated. But one injection will often be sufficient.

If a cure is not effected after repeated trials, it is probably due to one of two causes: Either all parts of the cavity have not been reached or it has become reinfected through the internal opening. In such cases there is nothing to be done except to resort to the operative method. In this method the patient is anesthetized and sphincters dilated. Every thing in connection with the operative field is made aseptic. Then if it is a complete fistula, a grooved director is introduced into the external opening and brought out at the

internal one, and the tissues over it divided with a sharp bistoury. Careful search is then made with a probe for any lateral sinuses, which are laid open if found. The bottom of the wound is freely curetted to remove the lining of the fistula. The tract is thus converted into an open wound, which is dressed antiseptically and loosely packed with antiseptic gauze. The bowels having been previously moved, should be confined for several days, especially if the operation has been at all extensive. When they do move, the parts should be immediately cleansed, and the wound made aseptic again. In the course of the healing process, the bottom of the wound is carefully watched in order to detect the formation of new pockets which should be opened at once. If the internal opening cannot be reached by reason of the tortuosity of the canal, the director should be introduced as far as possible without using force, the tissues are divided upon it, as far as it has gone, then by changing the course of the director it may be inserted still farther. Thus by successive steps it may be made to enter the internal opening. The finding of this opening is very essential, for if the director is forced through the mucous membrane at a different point other than the opening, it and the contiguous part of the fistula remain pervious and reinfection from the rectum will certainly occur and a cure prevented. Therefore by all means find the internal opening and divide it before completing the operation.

The horseshoe fistula is an extensive complete one, and is treated on the same general plan, the only difference being that one side is operated on and allowed to heal before the other side is touched. This is done to guard against dividing the sphincters more than once at the same operation. A blind internal fistula should be converted into the complete variety by introducing a probe into it to its very depth, and when detected through the skin it is cut down upon, after which the director can be introduced from the outside and the operation completed as described. I never use the ligature, and under no circumstances would I recommend it for the cure of fistula in ano.